Section-A (MCQ's)

Q.1 Choose the correct answer for each from the given option.

(i) The image fromed in a plane mirror is ________.
(a) Real (b) Inverted (c) Virtual and erect (d) Reand and inverted

(ii) A convex lens is ________.
(a) thinner at the centre (b) thicker at the centre
(b) a diverging lens (d) plane through out

(iii) According to Quantum theory, photons are ________
(a) Waves (b) Electronmagnetic waves
(c) Energy packets (d) particles

(iv) Rain drop are formed spherical in shpae due to one of the following properties of water.
(a) Surface tension (b) Viscosity
(c) Pressure (d) Air resistance

(v) An element whose atoms have same atomic number but different mass number are called:
(a) Molecule (b) Secondary element
(c) Isotopes (d) None of these

(vi) At S.T.O pure water boils at ________.
(a) 0K (b) 100 K (c) 273 K (d) None of these

(vii) If the fulcrum of a lever is between the effort and weight , it is a ______ class lever.
(a) First (b) Second (c) Third (d) None of these

(viii) Power is defined as:
(a) Rate of change of Position (b) Rate of change of force
(c) Time rate of doing work (d) None of these

(ix) The centripetal force is always directed to ________
(a) Towards the centre of circle (b) Along the direction of motion
(c) Away from the centre of circle (d) None of these

(x) The second condition of equilibrium states that:
(a) $\sum P = 0$ (b) $\sum \tau = 0$ (c) $\sum F = 0$ (d) Both (b) and (c)

(xi) If Fx and Fy are rectangular components of a force F, then $\tan\theta = 0$ ______
(a) $\frac{F_x}{F_y}$ (b) $\frac{F_y}{F_x}$ (c) $F_x + F_y$ (d) $F_x - F_y$

(xii) Friction can be reduced by using ball bearing, because they ________.
(a) make the surface plane (b) make the surface grassy
(c) Convert sliding friection into rolling friction
(d) have no friction of their own

(xiii) 10^{-9} second is called ______.
(a) Desisecond (b) Millisecond
(c) Microsecond (d) Nanosecond

(xiv) Ibn-ul-Haithem contribution toward ________ physics.
(a) Nuclear (b) Oceanogrphic (c) Optical (d) Thermal.

(xv) If a current is flowing through a ssolenoid, then the norht pole of the solenoid can be found by using ________ rule.
(a) Right hand (b) Left hand (c) Faraday's (d) Lenz's

(xvi) If the length of the pendulum becomes four times, it's time period will become.
(a) Four times (b) Twice (c) Three times (d) Eight times

(xvii) The substance used a medium between the two plates of a capcitor is known as ________
(a) Conductor (b) Semi-Conductor (c) di-electric (d) electrolyte

Section-B
(Short Answer)

Note: Answer any EIGHT of the following questions. Each question carries 05 marks.

Q.2 What is the contribution of Al-Haithem in the field of Physics?
Q.3 Explain the First Condition of Equilibrium.
Q.4 State and explain the Newton's Law of Gravitation.
Q.5 Derive the equation : $S = V_i t + \frac{1}{2}at^2$
Q.6 The radius of hydrogen atoms is 0.53×10^{-10} m. Convert it in cm , mm, and n.m.
Q.7 What are rectangular compoenents of a vector? How are they determined?
Q.8 What is energy? Name the different forms of energy.
Q.9 Define heat capacity and specific heat capacity.
Q.10 Explain torque or moment of force.
Q.11 Describe main causes of friction. Give the methods of reducing friction.
Q.12 A proton of mass 1.67×10^{-27} kg is moving in a circle of radius 100 cm. An electromagnet applies is a force of 1×10^{-12} N directed towards the centre of the circle. What is the velocity of the proton?
Q.13 Differentiate between mass and weight.

Section-C
(Descriptive Answer)

Note: Answer any TWO of the following questions. Each question carries 14 marks.

Q.14 (a) What is meant by regular and irregular reflection of light? Describe importanct of irregular reflection in daily life.
(b) State and explain Pascal Law.
Q.15 (a) What type of work is done by a movable pulley?
(b) How cana galvanometer be converted into voltmeter and ammeter?
Q.16 (a) Explain series and parallel combination fo resistance.
(b) 40 waves pass through a point on the surface of a pondin 2 second. Calculate the wave-length if the velocity of waves is 3.5 ms^{-1}.